

In the Specification

Please make the following indicated amendments:

Please replace the following paragraph on page 6, beginning at line 7 as indicated directly below:

These and other objectives, features, and advantages of the present invention will become apparent from the drawings, the descriptions given herein, and the appended claims. However, it will be understood that the ~~any~~ listed objectives and/or other objectives, features, and advantages of the invention are provided only as an aid in understanding aspects of the invention, and are not intended to limit the invention in any way, and therefore do not form a comprehensive or restrictive list of objectives, and/or features, and/or advantages of the invention.

Please replace the following paragraph on page 7, beginning at line 5 as indicated directly below:

In one preferred embodiment, the first high energy source comprises a laser beam welder and/or the second high energy source comprises a TIG welder. The tubular may comprise a vessel for suitable for containing pressure or take on any other suitable shape.

Please replace the following paragraph on page 12, beginning at line 4, as indicated directly below:

FIG. 12B is a sectional view along lines ~~10B-10B~~ 12B-12B of FIG. 12 showing the work piece as initially welded;

Please replace the following paragraph on page 12, beginning at line 13, as indicated directly below:

FIG. ~~12D~~ 12E is a sectional view along lines ~~10E-10E~~ 12E-12E of FIG. 12 showing the work piece after the weld is worked into the tubular wall in accord with one possible embodiment of the present invention.

Please replace the following paragraph on page 15, beginning at line 4, as indicated directly below:

In FIG. 9- FIG. 11, nugget or bead 10 is conditioned in accord with a presently preferred embodiment of the present invention to thereby avoid creation of stress risers. FIG. 9A - FIG. 11A show enlargements of the flow or stress lines in the region adjacent nugget 10. FIG. 9 again shows the initial "as welded" condition which was shown previously in FIG. 3 and which may also be a starting point of the presently preferred process. FIG. 10 represents the bead condition after a post weld heating method is applied in accord with the present invention. As indicated, crown portion 16 of bead 10 is melted to provide a new heat effect area. The height of crown 16 is reduced and the thickness widened. Note that now point A effectively simply moves along surface 18 of tubular 10. Now when bead 10 is rolled or worked into tubular 12 the result of which is indicated in FIG. 11, the radially inwardly directed forces due to the working are spread over a wider area. So the stress or flow lines 14 after bead 10 are rolled into tubular 12 as shown in FIG. 11A at 28 remain substantially similar in comparison to the situation of FIG. 9A. Because no sharp changes are produced in stress or flow lines 14, stress risers are not formed that might fail due to fatigue. Moreover, there is no fold over crevice or unwelded area as shown in FIG. 5. In fact, the wall thickness may actually be increased by a small amount around bead 10 in the region indicated by numeral 26 resulting in a stronger weld strength and no decrease in rated tubular wall strength as occurred in the prior art method result shown in FIG. 8A.

Please replace the following paragraph on page 17, beginning at line 5, as indicated directly below:

FIG. 12 provides an elevational view, in cross-section, of the same process with additional cross-sections shown in FIG. 12A- FIG. 12E for the various stages of operation of this embodiment of the present invention. Therefore, at the position of sectional lines 12A-12A in FIG. 12, the initial construction of tubular 32 with unwelded seam 38 is indicated in FIG. 12 and in FIG. 12A. As indicated at sectional lines ~~10B-10B~~ 12B-12B, laser beam welder 36 produces bead 42 to seal seam 38. As indicated, bead 42 extends radially outwardly with respect to surface 18 of tubular 32. Bead 42 also typically extends radially inwardly of the inner surface of tubular 32. As indicated at sectional lines ~~10C-10C~~ 12C-12C, post welder or TIG 40 remelts the upper portion of bead 42 to flatten it out such that the radial height is reduced to produce conditioned bead 48 which has an increased width and decreased height. Rollers such as rollers 52 are utilized for working tubular 32 as indicated at 12D-12D. The final weld area 50 has the same height as tubular surface 18. The width of weld area 50 is further increased and the height is decreased with respect to conditioned bead 48. In accord with the present invention, the subsequent working of tubular 32 utilizing rollers 52 or other working means results in a strong weld without producing stress risers or cracks for the reasons discussed hereinbefore.

Please replace the following paragraph on page 27, beginning at line 6, as indicated directly below:

~~The present invention provides a~~ A system and method for conditioning the surface and subsurface of a tubular whereby stress risers and crevices are avoided during subsequent working of the tubular. ~~In a preferred embodiment, the~~ The invention may be readily utilized to modify a continuous tubular manufacturing operation wherein a laser beam welder is utilized for welding the seam of the tubular as the tubular is moved with respect to the laser beam welder thereby producing an elongate bead. A TIG welder is provided downstream of the laser beam welder with respect to the direction of movement of the tubular to thereby remelt the crown portion of the elongate bead thereby causing the crown portion to flatten radially and spread out along the surface of the tubular. Because the forces produced by working the hard weld nugget are spread over a wider area, the conditioned weld may now be worked into the wall of the tubular utilizing standard working techniques without loss of tubular wall diameter or producing folded over portions that are more susceptible to metal fatigue.